

REMARKS

Claims 19-23 have been cancelled. Claims 24-41 are pending in this application. Support for new claim 24 can be found in original claim 19. New claim 24 also recites the term “substrate” throughout the claim. Support for new claims 25-28 can be found in original claims 20-23. Support for new claims 29 and 30 can be found in original claims 5, 14, and 15 and the second-to-last sentence in paragraph 0015. Support for new claims 31 and 32 can be found in the specification at the last sentence of paragraph 0015. Support for new claim 33 can be found in original claim 11. Support for new claims 34-40 can be found in the specification at paragraphs 0050 and 0051. Support for new claim 41 can be found in the specification at Example 1 under the section “Cleaning of Slides.” Support for new claim 42 can be found in the specification at, *inter alia*, paragraph [0005], Example 2, and original claim 8.

A clean copy of all of the pending claims is attached to this Amendment as an appendix. The appended clean copy of all of the pending claims is provided only as a convenience to the Examiner and is not intended to be an amendment of the claims pursuant to 37 C.F.R. § 1.121. No new matter has been added by the amendments; therefore, applicants respectfully request that examination continue on claims 24-41.

I. Claim Objections

The Office Action has objected to claims 20-23, where claims 20-23 depend from cancelled claim 19. Claim 19 has been re-written as new claim 24, with all of the dependent claims dependent on claim 24. Therefore, the pending claims are now in the proper format.

II. Rejections under 35 U.S.C. § 112

The Office Action has rejected claims 19-23 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Office Action asserts that the phrase “the slide” in claim 19 lacks proper antecedence. As discussed above, claim 19 has been cancelled and re-written as new claim 24. New claim 24 recites the term “substrate” throughout the claim in order to recite proper antecedence. Therefore, new claim 24 is definite to one of ordinary skill in the art.

III. Rejections under 35 U.S.C. § 102/103

The Office Action has rejected claims 19-20 and 22-23 under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Schena *et al.*

The pending application is a divisional application of U.S. application serial no. 09/925,808, filed August 9, 2001 (referred to herein as “the ‘808 application”). The ‘808 application was ultimately allowed and issued as U.S. Patent No. 6,787,312 on September 7, 2004 (referred to herein as “the ‘312 patent”). The ‘312 patent has one independent claim, which is recited below:

1. A method for reducing auto-fluorescence on a substrate, the method comprising:

providing a substrate with at least a first surface, said first surface being either with or without either a biological or a synthetic molecule immobilized thereon, or having either a coated or uncoated surface with a residual fluorescence; and

treating at least a portion of the first surface of the substrate with a reducing agent for longer than about 5 minutes to reduce auto-fluorescence on the substrate, wherein said autofluorescence is reduced by at least an order of magnitude RFU.

During the prosecution of the ‘808 application, the Examiner, which is the same Examiner in the pending application, also rejected the claims under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious in view of Schena *et al.* In order to address the rejection, applicants amended the independent claim, which is shown above as the underlined portion of the claim. Thus, by allowing the independent claim in the ‘808 application, the Examiner acknowledged that Schena *et al.* does not disclose or teach the reduction of autofluorescence by at least an order of magnitude RFU.

Turning to the present case, claim 24 recites a method for eliminating autofluorescence from a substrate. The term “eliminate” as recited in new claim 24 is one step further than the

reduction of autofluorescence as recited in claim 1 of the '312 patent. The definition of "reduction" includes the presence of some autofluorescence that is present on the substrate once the substrate has been contacted with the reducing agent, where the amount of autofluorescence present on the substrate after contact with the reducing agent is less than the amount of autofluorescence prior to contact with the reducing agent. Conversely, "elimination" is defined as the absence of autofluorescence on the substrate once the substrate is contacted with the reducing agent. Therefore, logic dictates that if Schena *et al.* does not disclose or teach the reduction of autofluorescence by at least an order of magnitude RFU, then there is no disclosure or teaching in Schena *et al.* for the elimination of autofluorescence from a substrate. In the absence of such a disclosure, the present invention is not anticipated or, in the alternative, rendered obvious in view of Schena *et al.*

At most, Schena *et al.* discloses that a 10-fold increase in sensitivity was achieved by modifying the coupling chemistry, which reduced background fluorescence. (Page 10618, fourth paragraph.) The term "background" refers to non-specific signals and not the intrinsic autofluorescence of the substrate. Fluorescence detection sensitivity is severely compromised by background signals, which can originate from endogenous sample constituents/surface to which the target is immobilized or from nonspecific hybridization of probes to the target. Referring to the "Microarray Preparation" procedure at page 10614 of Schena *et al.*, amino-modified PCR products are arrayed onto silylated microscope slides from CEL Associates. The silylated slides contain aldehyde groups attached to the slide that react with the amino-modified PCR products to produce a Schiff base (*i.e.*, a C=N bond). The step of washing the arrays with a solution of sodium borohydride for 5 minutes merely reduces the C=N bond of the Schiff base to produce an amine, which ultimately reduces the background fluorescence. The sodium borohydride also reduces any unreacted aldehyde groups present on the slide to the corresponding alcohol, which are also non-fluorescent. However, briefly washing the slide with sodium borohydride does not eliminate autofluorescence. This is indicated in Figure 8 of the application, wherein autofluorescence is reduced over time upon prolonged exposure (*i.e.*, greater than 5 minutes).

ATTORNEY DOCKET NO. SP01-208B (24C02.1-190)
Application Serial No. 10/729,618

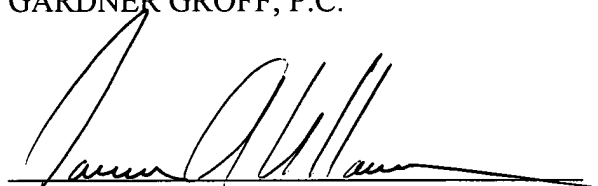
Therefore, based on these arguments as well as those presented above, the present invention is novel and unobvious in view of Schena *et al.*

CONCLUSION

Pursuant to the above remarks, reconsideration and allowance of the pending application is believed to be warranted. The Examiner is invited and encouraged to directly contact the undersigned if such contact may enhance the efficient prosecution of this application to issue.

No fee is believed to be due; however, the Commissioner is hereby authorized to charge any additional fees that may be required, or credit any overpayment to Deposit Account No. 50-1513.

Respectfully submitted,
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1-25-06
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